



US005395248A

United States Patent [19]

Kinoshita et al.

[11] **Patent Number:** 5,395,248[45] **Date of Patent:** Mar. 7, 1995

[54] **CONNECTOR COMPRISING PLUG AND SOCKET WHICH ARE ROTATABLY ENGAGED WITH EACH OTHER**

[75] **Inventors:** Yoshichika Kinoshita; Hiroyuki Wada; Kanichiro Shoji, all of Ibaraki, Japan

[73] **Assignee:** Mitsumi Electric Co., Ltd., Japan

[21] **Appl. No.:** 213,978

[22] **Filed:** Mar. 16, 1994

Related U.S. Application Data

[63] Continuation of Ser. No. 738,234, Jul. 30, 1991, abandoned.

Foreign Application Priority Data

Jul. 31, 1990 [JP] Japan 2-81426 U
Aug. 31, 1990 [JP] Japan 2-92285 U
May 28, 1991 [JP] Japan 3-38551 U
May 28, 1991 [JP] Japan 3-38552 U
May 30, 1991 [JP] Japan 3-40024 U

[51] **Int. Cl.⁶** H01R 39/02

[52] **U.S. Cl.** 439/31

[58] **Field of Search** 439/31

References Cited**U.S. PATENT DOCUMENTS**

4,715,819 12/1987 Iwasa et al. 439/31
4,755,143 7/1988 Enomoto et al. 439/31
4,850,882 7/1989 Yu 439/31
4,863,387 9/1989 Snaper et al. 439/31
5,174,761 12/1992 Kodaira 439/31

Primary Examiner—Eugene F. Desmond
Attorney, Agent, or Firm—Andrus, Scales, Starke & Sawall

ABSTRACT

A connector includes a first member, a second member which is rotatably coupled to the first member, a first contact which is provided for a surface of the first member opposite to the second member, and a second contact, provided for a surface of the second member opposite to the first member, which is in contact with the first contact, the first contact and the second contact being relatively slid so that an electric connection can be maintained when the first member and said second member are relatively rotated.

14 Claims, 34 Drawing Sheets